

## ABSTRACT

A spread spectrum receiver whose de-spreading process based on transformed spreading codes is provided. Instead of de-spreading with original spreading codes, this approach de-spreads received signal with the spreading codes transformed from the original codes in order to eliminate the negative impact of system impairments such as frequency offset to a spread spectrum receiver. Before de-spreading with the transformed code, the received signal goes through the same transformation as the original codes do. After a transformation, the transformed codes may exist some undesirable property such as spreading code having DC content. An approach is given to cancel unwanted side effects relating the transformed spreading codes. The approaches are very effective for spread spectrum system based on frequency modulation scheme such as MSK. For this kind of system, the frequency offset translates to DC offset after the transformation and the DC offset can be cancel since the DC property of the transformed spreading code is known in advance.